

**A Consumer Price Index  
for Low-Income Households in Ireland  
(1989-2001)**

**Eithne Murphy and Eoghan Garvey**

**Combat Poverty Agency  
Working Paper Series 04/03**

**ISBN: 1-90548-503-4**

**October 2004**



**Abstract** Published Irish figures for inflation are generally based on price changes of a basket of goods consumed by the 'average consumer'. Inflation figures are also published for smaller baskets of food, clothing and other products. However, none of these figures gives any information on price changes for different socio-economic groups within the country. Using data from the Household Budget Survey we reconstructed inflation figures to reflect how price developments impacted on the lowest income groups from 1989 to 2001. We also calculated the index for the lowest income groups in urban and in rural areas. All three indices were then compared to the published State measure. We find that from 1989 to 1996 all the indices were similar but that from 1996 to 2001 prices rose substantially more for the Urban Poor than for the population as a whole, while prices for the Rural Poor rose at approximately the same rate as for the population as a whole. When the reasons for this Urban Poor gap in 1996-2001 are analysed, rental costs, as well as cigarette and clothing costs, and mortgage interest, explain much of the divergence. We conclude with a discussion of welfare issues and policy recommendations.

**Key Words:** Inflation, Poverty, Ireland

Disclaimer

This Working Paper was funded by the Combat Poverty Agency under its Poverty Research Initiative. The views, opinions, findings, conclusions and/or recommendations expressed here are strictly those of the author(s). They do not necessarily reflect the views of the Combat Poverty Agency which takes no responsibility for any errors or omissions in, or for the accuracy of, the information contained in this Working Paper. It is presented to inform and stimulate wider debate among the policy community and among academics and practitioners in the field.

## Introduction

The Consumer Price Index (CPI) is the official measure of inflation in Ireland. It is designed to measure the change in the average level of prices of goods and services that private households purchase. It is a very important social indicator as its value impinges on the measurement of economic growth and economic wellbeing. For example, when assessing whether changes in nominal wages, social welfare payments or pensions represent a real economic gain to workers, welfare recipients and pensioners respectively, these changes are usually compared to changes in inflation as measured by the CPI.

Specifically the CPI measures changes in the cost of a broad basket of goods over time. This basket is supposed to represent the purchases of a typical or representative Irish household. Given that there is no such thing as the typical household, it would be surprising if this official measure was a good measure of inflation for everybody. Therefore, use of a single broad index to adjust the nominal incomes of broad groups of people can have an automatic distributional effect. As early as 1958, Ken Arrow, the subsequent Nobel Prize winner in economics, called for a separate cost of living index number for different income groups, thereby taking into account the presumed differential consumption patterns of people on different income levels (Arrow, 1958).

The principal objective of this paper is to examine whether poorer people in Ireland experienced changes in the cost of living in the 1990s that differed from what was officially reported as the Irish CPI. Using data from the Household Budget Survey (HBS) on the expenditure patterns of households in the lowest income decile group (lowest 10 per cent classified according to income), we reconstructed the index to reflect more accurately how price developments impacted on this group. In addition, we calculated the inflation index for the lowest income decile in urban areas and in rural areas respectively, in order to see whether a rural/urban differential existed. All three inflation indices are compared to the recalculated State measure. The indices are compiled for the period October 1989 to October 1996 and from October 1996 to November 2001. This replicates the practice of the Central Statistics Office (CSO) in compiling the official CPI.

A secondary objective of this paper is to examine the commodity contribution to the cost of living measurement for our different groups. This is a useful exercise if one accepts that the commodity composition of inflation is significant from a welfare perspective. In other words, the commodity price changes that determine measured inflation may not be a matter of indifference to society and to policy makers.

Finally, we address a related conceptual issue of the accuracy of the methodology used by the CSO (and by us), to calculate changes in the cost of living. Economists generally agree that standard base year measures of changes in the cost of living (such as the CPI) overstate the true increase in the cost of living. This became a policy issue in the United States (US) in the mid-1990s, for fiscal reasons. In late 1996, an advisory commission to the US Senate Finance Committee produced a report in which it stated that the US CPI overestimated cost of living increases by over 1 per cent per year (US Senate Finance Committee, 1996). The report added that indexing social security benefits and federal income tax brackets to the CPI resulted in over-indexation and concluded with warnings as to the effect of such over-indexation on future budget deficits. In fact the accuracy or otherwise of standard base year indices like the CPI depends on the extent to which a *lack* of substitutes exists for the goods and services that a household purchases. As it is not unreasonable to assume that higher income households can choose across a greater

range of goods, this bias is undoubtedly positively correlated with income levels. This is of relevance to our work when comparing inflation measures for poorer households and for the average household.

### Cost of Living Methodology and Data

The majority of empirical studies on cost of living measures for different demographic sub-groups emanates from the US. The evidence that different groups may experience different inflation than the official measure is mixed (see Michael (1979), Hagemann (1982), Jorgenson and Slesnick (1983), Boskin and Hurd (1985), Amble and Stewart (1994), Garner, Johnson and Kokoski (1996), Idson and Millar (1999)). In fact, until one does the estimates, it is not possible to judge *a priori* the outcome. For Ireland, McCarthy (1978) and Somerville (2004) have carried out this exercise at a fairly aggregated level (between 10 and 12 goods) and find contrasting results. One finding in the earlier study was that higher income tended to be correlated with higher price rises; in Somerville's study for the later period (1996-2001), the opposite is the case. The latter result is also found for the same period in this paper.

The Central Statistics Office (CSO) calculates cost of living indices for Ireland using a base year methodology. In other words, it looks at the cost of a representative basket of goods in some base year and measure how the cost of that same basket evolves over time. Specifically the CPI is a fixed quantity index, otherwise known as the Laspeyres price index, which holds its base year quantities of goods fixed. It can be written as follows:

$$I = \frac{\sum_i P_{it} Q_{i0}}{\sum_i P_{i0} Q_{i0}}$$

where  $Q_{i0}$  is the quantity of good  $i$  purchased in time 0 (where 0 represents the base year),  $P_{i0}$  is the price of good  $i$  in time 0,  $P_{it}$  is the price of good  $i$  in some future time  $t$  and  $\sum$  is the summation of the prices and quantities of the different goods included in the index.

The basis for the selection of the goods and their quantities to be included in the index is, primarily, the expenditure pattern of the average household. The CSO is responsible for the collection and compilation of these data. To render such data usable, price developments are expressed in index form (the price of a good in time  $t$  as a percentage of the price of the good in time 0) and quantities are expenditure weights (the expenditure share of a good in total expenditure). Price surveys were conducted quarterly up to January 1997 and on a monthly basis thereafter. Expenditure weights are determined primarily (though not exclusively) by the information revealed in the Household Budget Surveys (HBS).

The expenditure weights attached to price changes are of fundamental importance in determining the calculation of the overall measure of consumer price inflation. If a good is assigned a high weight in the construction of the CPI, then its price development will have a large impact on the overall *measure* of inflation. If a household has a very low consumption of a good with a high weight and if the price of that good rises by more than the prices of other goods, the effect will be for official inflation measures to overstate the rate of inflation for that household. Conversely, if a household spends a larger proportion of household income on the good than the

expenditure weight assigned to it in the CPI, then its experienced inflation will be higher than the official measure.

The 1987 HBS was the primary source of information for the new expenditure weights introduced in November 1989 and the 1994/1995 HBS was the primary source for the expenditure weights introduced in October 1996. What this study does is use the detailed information contained in the published Household Budget Surveys to recalculate the expenditure weight for the sub-categories of interest to us. We calculate average expenditure shares for the lowest income decile in the State (State Poor), the lowest income decile in Urban Areas (Urban Poor), the lowest income decile in Rural Areas (Rural Poor), as well as recalculating the weights for the State as a whole (State Average).

The expenditure weights that the CSO uses to calculate the CPI do not match exactly the average expenditure on different categories of goods as revealed in the Household Budget Survey. Alcohol is generally given a higher weight (and since 1996 likewise tobacco) than the HBS expenditure shares. This occurs because of the discrepancy between reported expenditure on alcohol and tobacco in the HBS and other sources of information as to actual expenditure, such as VAT and Excise receipts. However, given that all commodity expenditure weights must sum to 1, increasing the weights attached to alcohol and tobacco necessitates reducing the weights on other commodities. The CSO does this, but not uniformly, across products. The criteria the CSO uses in deciding the extent to which other commodity weights must be readjusted are not available to us.

In recalculating the CPI for the State as a whole and for our specified sub-categories, we also adjust upwards the weights attached to alcohol and tobacco by the same percentage as the CSO and we adjust downwards the weights on all other commodities. However, unlike the CSO, we do the latter uniformly across all other commodity categories. Consequently, our re-calculation of the CPI for the State uses weights that differ marginally to the official weights. This did not result in any great difference between the official inflation figures and our aggregate measure, what we call the Stage Average.<sup>1</sup>

### **General Results for the Different Socio-Economic Categories**

Figures 1 and 2 plot the evolution of our calculated price indices for the periods October 1989 to October 1996 and October 1996 to November 2001 respectively. From Figure 1 we can see that there appears to be little or no difference in the four indices, except for a short period in late 1992 and early 1993 when the State Average index increased faster than the indices for our sub-categories. This brief and temporary divergence can be partly explained by the unprecedentedly high interest rates that existed in that time period. These would have impacted less on poorer households, many of whom would have been in the non-home ownership category. By October 1996 (end of the first period), the calculated price index for the State

---

<sup>1</sup> The analysis was undertaken twice, using HBS weights for alcohol and tobacco and all other goods, and then using CSO weights for these and all other goods, with substantially the same results. The main reason for some very slight discrepancies with published CSO figures is the amount of price indices available to us (129) and the amount used by the CSO (over 600). The individual price indices for each HBS good would not be released by the CSO, and so some aggregation of HBS goods was needed to match the available indices. The main result of this paper, the difference – discussed later – of 4.3 percentage points between the index for the Urban Poor and State Average in 2001 (base Dec. 1995) changes to a difference of 3.8 points if all the CSO adjustments are used, and to one of 4.4 per cent if unadulterated HBS weights are used.

Average was 117.4. In other words, the price of the basket of goods purchased by the average household had increased by 17.4 per cent relative to what it cost in October 1989. The calculated price indices for the State Poor, Urban Poor and Rural Poor were 116.9, 117.5 and 116.5 respectively.

From Figure 2, on the other hand, it is evident that some time in late 1998, early 1999, price increases began to accelerate and, with this acceleration, divergences start emerging in the different indices. The price index for the Urban Poor increased more than any other index. Crucially, it was higher than the measure for the State Average. Prices also rose faster for the State Poor than for the State Average, while the Rural Poor experienced the lowest rate of price increase. This divergence can almost certainly be attributed to the increase in rent and accommodation charges and to the sharp fall in mortgage interest rates. Taking October 1996 as the base year, the values of the various price indices at the terminal point in November 2001 were 119.2 for the State Average; 121.2 for the State Poor; 123.5 for the Urban Poor and 118.6 for the Rural Poor. The difference in the price index for the Urban Poor and the State Average in November 2001 exceeds 4 percentage points.<sup>2</sup>

---

<sup>2</sup> When we use unpublished disaggregated HBS data, we find a slightly smaller difference between Urban Poor and State Average at the end of 2001 compared to the end of 1996 – 3.75 percentage points. This gap appears to remain at approximately 3.7 percentage points when household size is accounted for, though this is a very preliminary result. The results using disaggregated data will be available in late 2004.

Figure 1

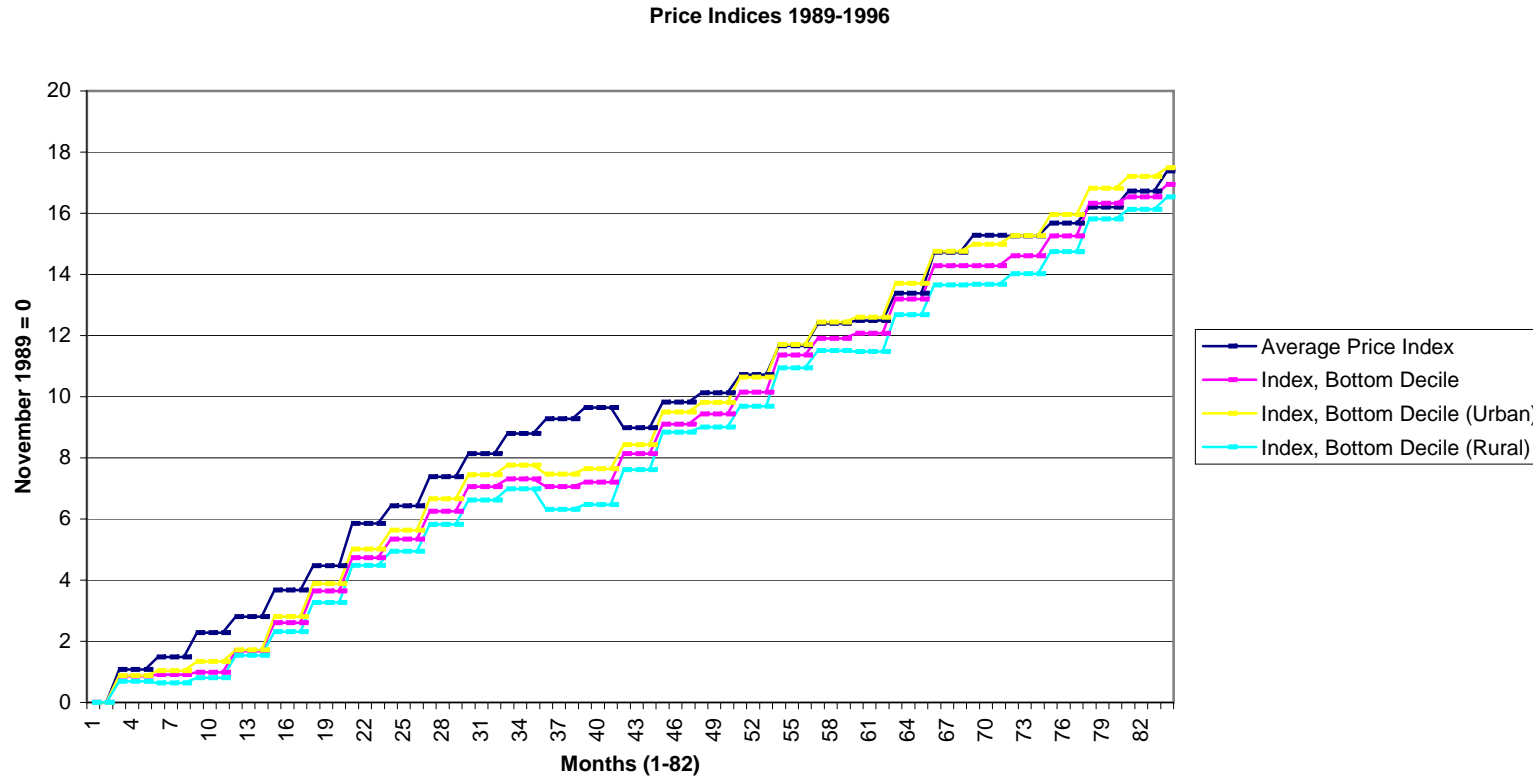
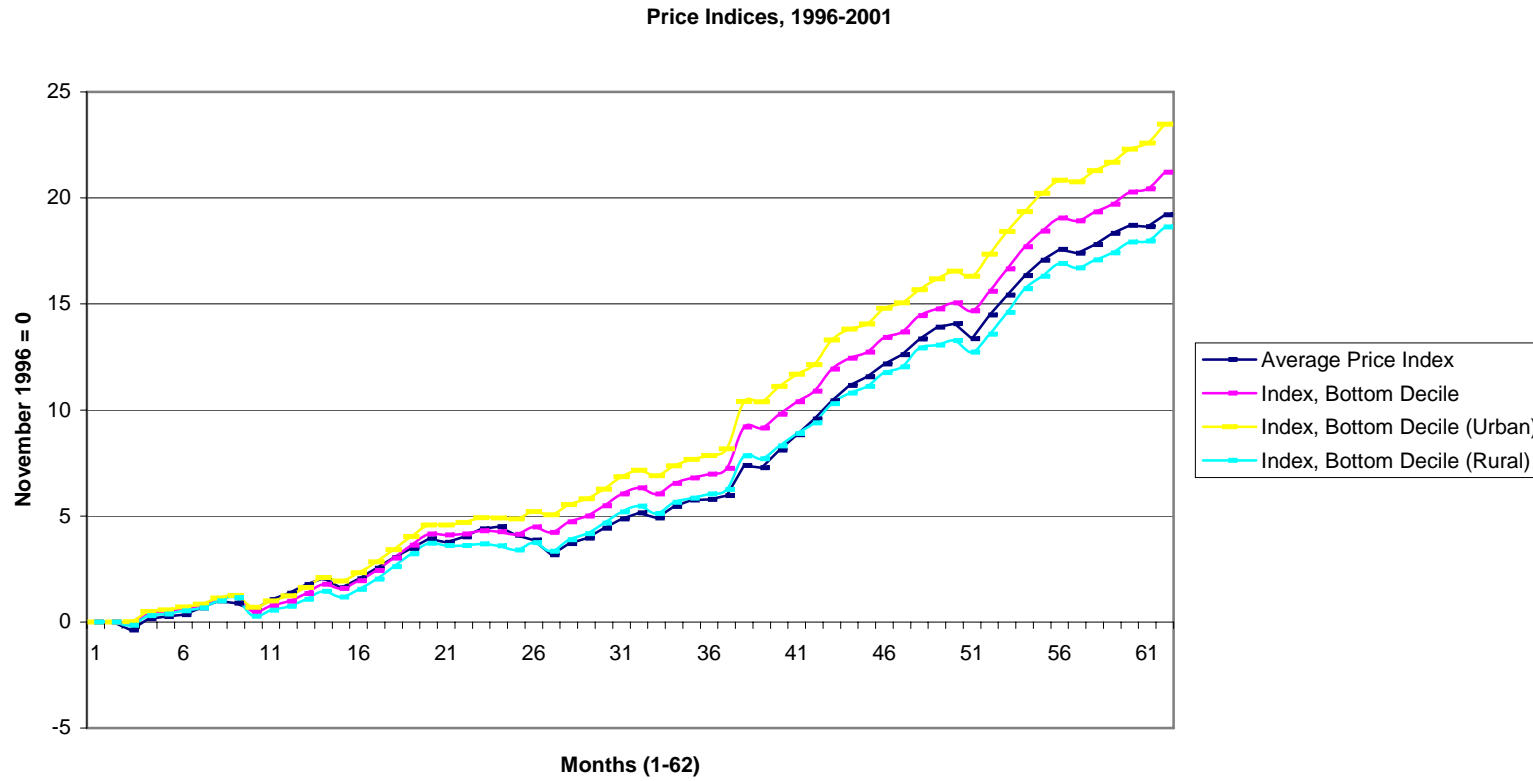


Figure 2



Appendices 1 and 2 contain detailed data on the price movements of the commodities that make up our indices and their associated weights over the two time periods. The weights reflect the expenditure share of the good or service for the type of household being analysed. Commodities are ranked according to their rate of price increase between the base period and the terminal period. It is very revealing to see the extent of variation in the mean expenditure weights across our four categories.

Table 1 summarises some of the information contained in Appendices 1 and 2. We have selected groups of goods whose prices have risen most over the two time periods, in order to compare their relative importance for the different household categories. We can see from Table 1 the higher weight that rent and accommodation costs have in the expenditure of the Urban Poor than for the average household. This weight increases for the Urban Poor by approximately 50 per cent in the second time period under review. By contrast, entertainment costs have a lower weight in the expenditure of the State Poor compared to the State Average, although this increases in the second time period for all household categories. Both types of goods displayed high inflation in both time periods. However, inflation in the rental and accommodation sector added more to the estimated cost of living of the Urban Poor than to the average household. The reverse is the case for inflation in the entertainment sector. Increases in vehicle insurance and tax added less to the cost of living of the Urban Poor than to that of the Rural Poor and the State Average.

All of the aforementioned differences in expenditure weights across household types are unsurprising in view of the differences in the socio-economic environment of high-income versus low-income households and rural versus urban households.

**Table 1: Weights of Goods whose Prices Rose Substantially over Both Periods**

<i>Period 1: 1989-1996</i>	State Average	State Poor	Urban Poor	Rural Poor
Rent and Accommodation	1.866	3.881	6.22	1.972
Vehicle Insurance and Tax	2.902	2.316	1.49	2.866
Clubs and Entertainment	4.93	2.508	2.807	1.992
Hospital and Medical Expenses	1.898	1.051	0.933	1.009
Cigarettes and Alcohol	8.595	8.838	8.733	8.615
<i>Period 2: 1996-2001</i>				
Rent and Accommodation	2.962	5.084	9.09	1.135
Vehicle Insurance and Tax	3.377	2.715	1.807	3.427
Clubs and Entertainment	6.045	2.844	3.525	2.384
Hospital and Medical Expenses	2.664	1.061	1.256	0.895
Cigarettes and Alcohol	8.296	9.448	10.877	7.609

Note: Weight = unadjusted % of expenditure from the Household Budget Surveys

What appears (at least initially) to be more surprising is the lower weight accorded to hospital and medical expenses in the budget of the Poor compared to the State Average. This could reflect the reliance of poor households on the public health system, or it may be that health is not an immediate priority for those on low incomes. Precisely because of its cost, the poor may be excluded from this market and hence may be unable to register their need for such services in the form of expenditure. If the latter is the reason, then, although medical inflation does not appear to add much to the estimated cost of living of the poor, it has a very real negative impact on their welfare. The size of the expenditure weight for cigarettes and alcohol and its

similarity across all household types (in the first period; note the divergence in the second) illustrates the cultural importance of these goods and their ubiquity in Irish society. Increases in the price of these goods have had a non-negligible impact on measured inflation across all categories of households.

Certain goods have fallen in price, especially in the second period. Telephone charges fell by 23.9 per cent and clothing by 28.3 per cent from October 1996 to November 2001. More pertinently, these are goods that have big weights in the consumer basket. Telephones have a higher weight for the poor in general than for the State Average and clothing has a higher weight for the State Average than for the poor (see Appendix 2).

### **A Formal Decomposition of the Relative Discrepancy between the Indices for the Poor and the State Index**

The information summarised in Table 1 and the source information in Appendices 1 and 2 give a partial overview of the changes in the cost of living for each of our sub-categories. A more precise procedure for decomposing the relative differences between the price indices obtained from any two baskets of goods is one used by Hagemann (1982).<sup>3</sup>

We adapt the formula to estimate the *mean monthly discrepancy* between the cost of the market basket for our specific categories and the cost of the market basket for the representative national household (State Average). This gives a more accurate picture of what was happening to the cost of living of different groups over the whole time period.

For example, the value of two indices may be identical at the terminal period, but the evolution of these indices could have been very different. If the price of one basket of goods increased steadily over the time period and the cost of another basket only increased at the end, it is clear that consumers of the first basket experienced higher cost of living increases on average over the whole time period. This will be reflected in the mean monthly discrepancy figure. Table 2 presents these results.

<sup>3</sup> The formula is: Relative Difference =

$$100 * [I_{tc} - I_{tr}] / [I_{tr}] = \sum_{j=1}^m \left[ \frac{I_{j,t}}{I_{tr}} - 1 \right] * \left[ \frac{w_{jc}}{w_{jr}} - 1 \right] * [w_{jr} * 100]$$

where  $w$  is the weight of the good in the relevant basket,  $j=1, \dots, m$  identifies each of the 130 or so composite goods,  $t$  identifies the time period,  $c$  and  $r$  are the two population groups or sub-groups being compared and  $I$  signifies an index.

**Table 2: Average Gaps Between Indices**

Mean monthly gap between Group Index and State Average	State Poor	Urban Poor	Rural Poor
Mean monthly gap in Indices (1989-96)	-0.8141	-0.4300	-1.1262
Mean monthly gap in Indices (1996-2001)	0.8640	1.6174	0.0052

The negative values for the first time period means that poorer households experienced lower average inflation in the period 1989 to 1996 than did the average household. The largest gap is between the Rural Poor and the State Average (-1.1262) and the smallest gap is between the Urban Poor and the State Average (-0.43). This reinforces what we saw in Figure 1, where the State Average price index rose marginally more than the index for the Rural Poor for most of the time period and, in addition, a significant divergence occurred between Autumn 1992 and Spring 1993, when interest rates soared.

In the second time period we can see that a significant positive gap has emerged between the price index for the Urban Poor and the State Average (1.6174), whereas there is little significant difference in the mean monthly price indices of the Rural Poor and State Average. This confirms what was visually apparent from Figure 2, which is that prices for the Urban Poor started to rise more rapidly than for the State Average in late 1998.

The contribution of individual commodity types to the mean monthly discrepancy between our price indices is contained in Appendices 3 and 4. Any individual item that is *positive* in this calculation is *relatively disadvantageous* for the poor compared to the State Average. The opposite is true for items with negative values. Price movements of particular goods may be relatively disadvantageous for the poor for two reasons: (i) they may be goods that the poor consume relatively more of (compared to the State Average) whose prices have risen more than average prices or; (ii) they may be goods that the poor consume relatively less of (compared to the State Average) whose prices have risen less than average prices.

The distinction is important. For example, in the first period changes in the cost of rent (0.1782) were relatively disadvantageous to the State Poor compared to the State Average. The reason is that rent has a larger weight in the consumption basket of the State Poor compared to the State Average and rent inflation was higher than average inflation. Price developments in the clothing sector were also relatively disadvantageous for the State Poor (0.1303), but in this instance it is because the price of clothing rose by less than average prices and clothing has a lower expenditure weight for the State Poor compared to the State Average.

Goods that are relatively advantageous to the State Poor are so for the opposite reasons to those given above. For example, developments in telephone charges were relatively advantageous for the poor (-0.0322) in the first time period, because telephone charges rose less than average prices and expenditure on telephone charges had a higher weight for the State Poor than for the State Average. The price changes in package holidays were also relatively favourable for the poor (-0.18) as

they rose higher than average prices but their expenditure weight in the budget of the poor is less than the State Average.

The greatest difference in Cost of Living occurred between the Urban Poor and the State Average in the second time period. (Recall that by November 2001 the index was 123.5 for the Urban Poor and 119.2 for the State Average, and an examination of Figure 2 shows that the index for the Urban Poor was higher than for the State Average for nearly all of the second period). Given the extent of the difference in the price indices, we have summarised some of the information contained in Appendix 4 in order to highlight those goods whose price developments most affect the Urban Poor. This is shown in Table 3.

**Table 3: Goods that Most Affect the Gap between Urban Poor and State Average**

<i>High Consumption, Widen Gap</i>	<i>Low Consumption, Widen Gap</i>	<i>High Consumption, Narrow Gap</i>	<i>Low Consumption, Narrow Gap</i>
Rent	Clothing	Telephones	Education/Training
Cigarettes	Mortgage Interest	Local Charges	Other Medical Expenses
Potatoes	Cars	Electricity	Motor Insurance
Coal	Footwear	Milk	Medical Fees
Other Fresh Veg.	Toys	TV Rental	Meals Out
Tea	Personal Goods	Bread	Other Services
Fresh Fruit	Other Appliances	Bacon	Other Entertainment

In each column, the seven goods listed are those within their categories that have contributed most, in descending order, to either widening or narrowing the gap between the Urban Poor and the State Average. The first column shows those goods that the Urban Poor consume relatively more of, whose prices have increased by more than the average. The third column shows those goods that the Urban Poor consume relatively more of, whose prices have increased by less than the average. Goods with a low income elasticity of demand (and hence goods which the poor consume relatively more of) are defined in economic terms as necessities. Such goods could also be viewed as necessities according to other objective theories of welfare.

Conversely, goods that the better off consume relatively more of (those with higher income elasticities of demand) are defined as non-necessities or luxuries. These are the goods listed in columns two and four. (Of course an objective theory of welfare would question whether mortgage interest, footwear and clothing, listed in column 2, should be classified as non-essential or luxuries). The second column are those goods whose prices have risen less than the average and the fourth column are those goods whose prices have risen more than the average.

Price rises in those goods listed in columns 1 and 2 have been to the relative disadvantage of the Urban Poor. Goods whose price developments have been relatively advantageous for the Urban Poor are shown in columns 3 and 4.

When we try to explain the average 1.6 percentage point gap for 1996-2001 between the Urban Poor and the State Average shown in Table 2, we find that the whole gap can be accounted for by the price movements of just 4 goods (see the last few lines of Appendix 4): rent and cigarettes, from column 1 in Table 3, and clothes and mortgage interest, from column 2. It is unclear how much factors such as a one-off

decline in interest rates to meet EU requirements, or rapid growth in tax on cigarettes, or a possibly temporary tightening of the private rental market affected this gap, and how long lasting these factors will be.<sup>4</sup> Whether the gap is temporary or not, it is still important to be aware of its existence.

### **Welfare Implications**

As noted in the introduction, there are acknowledged problems using conventional fixed weight methods, such as the Laspeyres index, to calculate changes in the cost of living. The general claim is that it overstates the negative welfare effects of an increase in prices. Some go so far as to question its use entirely. 'The Laspeyres price index is not a true cost of living index. A cost of living index measures the average change in price with reference, not to a fixed list of demands, but to a fixed standard of living' (Crawford and Smith, 2002). Economists assert that different combinations of commodity demands give equal levels of economic wellbeing. Therefore if the price of a commodity rises, the consumer is expected to seek out its cheaper substitute that yields similar levels of economic wellbeing. It is the failure of the Laspeyres index to measure the aforementioned substitution effect that is considered to be the basis for the overstatement of the cost of living effects of price increases. A good review of the inability of the Laspeyres index to capture substitution effects is contained in Moulton (1996).

More accurate measures of the cost of living effects of price rises are called 'superlative indices' (Diewert, 1996). The difference between the cost of living as measured by the Laspeyres price index and a superlative index is considered to be a measure of the extent of substitution bias. It is estimated that not accounting for such substitution bias leads to an over-estimation of approximately 0.2 per cent per annum of US cost of living figures (Aizorbe and Jackman, 1993). However, recent research has challenged the presumed accuracy of superlative indices, claiming that they may exhibit downward bias (Greenlees, 2001). If this is the case, then measures of substitution bias may well be overstated.

Other biases that economists refer to are: outlet bias, quality bias and new product bias. If consumers respond to higher prices by switching to cheaper outlets and this is not reflected in price surveys, then outlet bias is said to exist. When higher prices reflect improved product quality, then quality bias exists and when new products are not included in the cost of living basket, then new product bias occurs. All of these biases are used as an indictment on the Laspeyres index and the extent to which it is supposed to overstate the cost of living effects of price rises.

We do not construct such indices, primarily due to lack of appropriate data (Hausman, 2002, discusses the kind of data needed), but we would also assert that such biases are much less pertinent where lower income households are concerned. As pointed out by Renwick (1998), if families are initially limited to less expensive goods, there is much less room for substitution when the prices of those goods rise.

---

<sup>4</sup> If, as is sometimes recommended, one takes all housing costs – both mortgages and rents – out of the calculation of price indices then, as one can see from the bottom of Appendix 4, the gap of 1.6 points from Table 3 would be approximately halved. However, we have left housing costs in so that comparisons can be made and because on balance we believe that they should be in. Over time, higher house prices will come to be reflected in the CPI, and high rents should always be included in the CPI as even a short period with high rents will have negative welfare consequences for some people. In this context, it is important to know how many of those in the bottom urban decile affected by higher rent costs receive rent allowance, and what proportion of their rent is covered by it: this kind of information is available from the disaggregated data currently being investigated.

A given statistical category for a good will contain a variety of goods that may be functionally substitutes but range from cheap, lower quality variants to more expensive, higher quality variants. Substituting away from the high quality variant to a lower quality variant after a price rise would appear to be more likely than replacing lower quality goods by higher quality goods.

Outlet bias is determined by mobility. The less mobile one is the more difficult it is to shop around to get the best value. If one accepts the common sense argument that the poor are more likely to be consuming cheaper varieties of a good to begin with (compared to the average) and that they are also less mobile than the average household, then it makes sense to say that substitution bias and outlet bias will be less relevant for them than for the richer household. The aforementioned would imply that the actual gap in the cost of living between the Urban Poor and the State Average was probably greater than the measured 4.3 percentage points.

Whether quality bias serves to further increase the difference between the actual and measured cost of living difference between the Urban Poor and State Average depends on whether new products, or improved quality versions of existing products, are likely to be relatively more important in the budget of the high-income as compared to the low-income household. If most product innovations are targeted at better off households, then that strengthens our claim that the estimated gap of 4.3 per cent is lower bound. Otherwise, in cases where most product innovation is aimed at the lower income households, the estimated gap would be less than 4.3 per cent.

While all of the above are issues that need to be resolved empirically using alternative cost of living measurements, we would still claim that it is not unreasonable to assert that the overstatement of inflation bias of the index that we use (Laspeyre price index) is greater for better off households than it is for worse off households, using the common sense arguments outlined in the last few paragraphs.<sup>5</sup>

Our study also revealed some differences in the causes of inflation for the Urban Poor compared to the average household. Most significant was the role of rent and accommodation in determining the cost of living changes for the Urban Poor and the role of clubs and entertainment in deciding the cost of living changes for the average household. At issue here is whether, from a welfare perspective, the commodity composition of price inflation matters. If essential goods have fewer substitutes, as evidenced by lower price elasticities of demand for these goods, then inflation caused by increases in the price of such goods has more of a negative welfare effect than inflation caused by an increase in the price of less essential goods. Substituting away from such goods when their price increases may not be a voluntary option and

---

<sup>5</sup> While it is not conclusive, as like is not being compared with like, a comparison with Somerville's 2004 results is useful. Somerville finds an index of 117.3 for the State Average and 121.4 for the bottom income decile for the end of 2001, using late 1995 as the base. His are 'true cost of living' indices, which use a demand function to derive an estimated cost of living so as to eliminate substitution bias. Our Laspeyres index for the end of 2001 is 119.2 for the State Average (about two points higher than Somerville's 'true' index) and 121.2 for the bottom state decile (almost the same as Somerville's). The difference between our results and his are therefore larger for the State Average than for the bottom income decile. If these differences were to carry over, using Somerville's methods on our data, then our claim that substitution bias is very probably greater for the average than for the poor would be validated.

if it became a forced choice, due to income restrictions, then the welfare effects would be even more serious.<sup>6 7</sup>

The orthodox economic view of welfare, in addition to being a subjective theory, conflates needs and wants. This is why issues of substitution bias are assumed to be important. While there does not exist a systemised post-Keynesian theory of choice, there is a coherence to be found in the work of post-Keynesians (Drakopolous, 1992; Lavoie, 1992, 1994) where the emphasis is on a distinction between needs and wants, a needs hierarchy, the separability of needs and choices being influenced by habit and convention due to bounded rationality and the unknowable state of the future. All this points to a lexicographic ordering of preferences whereby, if a household's real income is below a certain threshold, it is not appropriate to think of this household as making constrained choices between competing wants. Instead they are trying to satisfy non-competing needs in some coherent fashion. The implication is that the inability to satisfy one's needs has much more serious welfare effects than an inability to satisfy one's wants. This theoretical perspective is supportive of the view that increases in the cost of essential goods, if they push real income below a threshold where choice is severely restricted, has more serious welfare implications than an equivalent increase in the cost of non-essential goods.

The idea that welfare is broader than material wellbeing is a reasonably uncontentious claim. According to Nobel Prize winning welfare economist Amartya Sen, it is important for the formulation of policy to assess economic development in terms of the substantive freedoms that people enjoy. It is the capacity to do things as well as what you actually do. '... the freedom centred perspective has a generic similarity to the common concern with quality of life' (Sen, 1999, p.24). If one accepts Sen's claim that freedom and quality of life are related concepts then, when material poverty reaches a level where choice is severely restricted, this has welfare implications over and above material deprivation. In relation to the topic of this paper, the fact that prices for the Urban Poor rose more than for the State Average, as well as the fact that rent accounted for a major part of the gap in the mean monthly indices, suggests that the true welfare differential between the two categories of household may have exceeded the calculated index differential.

## Conclusion

There are many ways to measure cost of living changes over time, just as there are many groups for whom such changes could be measured. We have found that, using standard methods, prices have risen for the Urban Poor by 4.3 points more from 1996 to 2001 than have prices for the population as a whole. Prices have risen slightly less for the Rural Poor than for the population as a whole. In the first period of this study, between 1989 and 1996, there was little difference in price indices between the State Average, the State Poor, the Urban Poor and the Rural Poor.

On further examination we find that much of the relative increase for the Urban Poor in the second period was due to increases in accommodation charges paid by the Urban Poor (mainly rent). The fall in the price of telephones and telephone charges

---

<sup>6</sup> Economists measure the substitutability of goods by looking at the price elasticities of demand. Essentials (luxuries) are defined as those goods with a low (high) own price elasticity of demand.

<sup>7</sup> Madden (1993) looked at price and expenditure elasticities for broad groups of goods in Ireland and showed that, to some extent, the absolute value of the elasticities were positively correlated. This implies that poorer (richer) households spend relatively more of the household budget on essentials (luxuries).

has, on the other hand, helped the Urban Poor. Much of the increase from 1996 to 2001 in the cost of living affecting the population as a whole is due to increases in the price of entertainment and of medical services, while the sharp fall in the price of clothing and in mortgage interest charges up to 2001 has helped reduce the overall rate of price increase for the population as a whole.

When we look more carefully at those goods that affected the gap between prices for the Urban Poor and the State Average we found that much of the ongoing extra inflation experienced by the poor in the second period was due to price rises in a broad range of essentials, whose prices rose consistently faster than average. These goods ranged from tea and coffee to fruit and fish, detergents and potatoes, as well as the aforementioned accommodation charges. Other goods, whose prices rose less than the average (or even fell), also contributed to widening the gap between the Urban Poor and the State Average. Due to the lower than average price rises for these goods and given that the State Average have a higher relative consumption of these goods, this translated into a relative gain for the State Average. The goods in question ranged from clothing and mortgage interest to stationery, sporting goods, cds, videos, ice cream and desserts, fuel oil, transport and toys.

We have seen too that, because of substitution bias and other biases, the usual index used (a Laspeyres index) may over-estimate cost of living increases for the population as a whole, but may prove a relatively accurate barometer of the cost of living for the poor. Based on US figures, one could conservatively add at least another half percentage point to the 4.3 percentage point difference already found between the 2001 price indices of the Irish Urban Poor and the State Average.

In the spirit of Sen, we have argued that the constraints that the poor face have welfare implications that go beyond their capacity to buy goods and services. Any increase in the cost of living of the poor may lead to less freedom to choose, and this loss of freedom is another – unmeasured – loss of welfare. This is a further important reason for paying close attention to the effects of price changes on the poor.

The direct policy implications of these conclusions are as follows:

- The CSO should calculate separate consumer price indices for different kinds of households and make these available to policy-makers and to the public. Simply publishing a Consumer Price Index for the State Average means there is no information available about the true price increases experienced by different groups in society. The compilation of such a variety of indices for different groups should not involve a substantial increase in resources on the part of the CSO.
- The CSO should also make available information concerning the main sources of inflation for the different social groups. If the poor experience inflation due to an increase in accommodation charges or other essential goods, this is likely to lead to a greater welfare loss than if inflation occurs due to increases in the prices of non-essentials. Policies can be better targeted to meet the needs of the poor once such information is known. Income supports or specific subsidies, for example, can be better tailored to the needs of the poor.
- Changes in inequality over time cannot be accurately monitored unless prices are known as well as incomes. The normal procedure is to ignore prices in calculating GINI coefficients and other indicators of inequality, but if, as we have seen, prices have risen by 4 or 5 percentage points more for the Urban

Poor than for the State Average over the 1996-2001 period, then they must have risen by less than average for some other income groups. This means that even if nominal incomes had not changed for any income groups in Ireland between 1996 and 2001, inequality in purchasing power would almost certainly have increased – maybe quite substantially. Knowledge of price indices for different groups is necessary in order to account for this type of change in inequality.

Finally, in relation to future Irish research in this area, a fuller understanding of differences among indices for different groups over different periods of time is essential. This entails working with disaggregated data at the household level to determine which household characteristics (e.g. income, age, tenure, marital status) are associated with significant differences in the value of price indices. Also, an analysis of the data over time is needed to measure the extent of substitution bias, and a detailed examination of CSO procedures is necessary to help gauge the extent of other kinds of possible biases in the calculation of CPIs.

## References

Aizorbe Ana M. and Patric C. Jackman (1993) 'The Commodity Substitution Effect in CPI Data, 1982-1991'. *Monthly Labour Review*, December. 25-33.

Amble Nathan and Ken Stewart (1994) 'Experimental Price Indices for Elderly Consumers'. *Monthly Labour Review*, May. 11-16.

Arrow Kenneth J. (1958) 'The Measurement of Price Changes', in *The Relationship of Prices to Economic Stability and Growth*. Joint Economic Committee US Congress, March 31.

Boskin M. and Hurd M. (1985) 'Indexing Social Security Benefits: A Separate Price Index for the Elderly'. *Public Finance Quarterly*, 13. 436-449.

Crawford I. and Z. Smith (2002) *Distributional Aspects of Inflation*. The Institute for Fiscal Studies. June.

Diewert W. Erwin (1976) 'Exact and Superlative Index Numbers', *Journal of Econometrics*, May. 4. 115-145.

Drakopolous Stavros A. (1992) 'Keynes Economic Thought and the Theory of Consumer Behaviour'. *Scottish Journal of Political Economy*, 39(3). 318-336.

Garner Thesla I., David S. Johnson and Mary F. Kokoski (1996) 'An Experimental Consumer Price Index for the Poor'. *Monthly Labour Review*, September. 32-42.

Greenlees John S. (2001) 'Random Errors and Superlative Indexes'. BLS Working Papers, US Department of Labour. Working Paper 343, March.

Hagemann Robert (1982) 'The Variability of Inflation Rates across Household Types'. *Journal of Money, Credit and Banking*, November. 494-510.

Hausman Jerry (2002). 'Sources of Bias and Solutions to Bias in the CPI'. NBER Working Paper 9298, October.

Idson Todd and Cynthia Miller (1999) 'Calculating a Price Index for Families with Children: Implications for Measuring Trends in Child Poverty Rates'. Working Paper. Columbia University Server Project, June.

Jorgenson D.W. and D.T. Slesnick (1983) 'Individual and Social Cost of Living Indexes', in *Price Level Measurement*, eds W.E. Diewert and C.Montmarquette, Ottawa: Statistics Canada, pp 241-336.

Lavoie Marc (1992) 'Foundations of Post-Keynesian Economic Analysis'. Aldershot, Edward Elgar.

Lavoie Marc (1994) 'A Post-Keynesian Approach to Consumer Choice'. *Journal of Post-Keynesian Economics* 1994, 16 (4). 539-562.

Madden David (1993) 'A New Set of Consumer Demand Estimates for Ireland'. *The Economic and Social Review*, Vol. 24. no. 2, January. 101-123.

McCarthy, Colm (1977) 'Estimates of a System of Demand Equations using Alternative Commodity Classifications of Irish Data, 1953-1974'. *The Economic and Social Review*. Vol. 8. no. 3. April. 201-211.

Michael Robert (1979) 'Variation across Households in the Rate of Inflation'. *Journal of Money, Credit and Banking*, February. 32-46.

Moulton Brent R. (1996) 'Bias in the Consumer Price Index: What is the Evidence?' *Journal of Economic Perspectives*, Fall 10(4). 159-177.

Renwick Trudi J. (1998) 'Does the U.S. Consumer Price Index Overestimate the Changes in the Cost of Living for Low-Income Families?' *Feminist Economics*, Fall 4(3). 129-142.

Snyder Eleanor (1961) 'Cost of Living Indexes for Special Classes of Consumers'. *The Price Statistics of the Federal Government: Review, Appraisal and Recommendations. A Report to the Office of Statistical Standards*. Bureau of the Budget (NEBR), Staff Paper 7.

Sen Amartya (1999) *Development as Freedom*. Oxford.

Senate Finance Committee (1996) *Advisory Commission to Study the Consumer Price Index, Toward a more Accurate Measure of the Cost of Living*. December 4.

Somerville R.A. (2004) 'Changes in Relative Consumer Prices and the Substitution Bias of the Laspeyres Price Index: Ireland, 1985-2001'. *The Economic and Social Review*, Vol. 35 Spring. 55-82.

**Appendix 1: Price Changes and Weights for Individual 'Goods', 1989-1996**

<b>Ranking by Change in Price from 1989 (part 1)</b>	1996 price index (1989 = 100)	average weight	weight for state poor	weight for urban poor	weight for rural poor
local authority charges	194.1	0.153	0.295	0.298	0.280
other vehicle costs	167.2	0.174	0.101	0.060	0.179
club and soc fees	165.1	0.402	0.146	0.149	0.119
other entertainment	157	0.773	0.272	0.216	0.288
hospital charges	149.8	0.100	0.081	0.100	0.031
electrical repairs & parts	146.6	0.180	0.112	0.090	0.188
medical fees	146.2	0.518	0.200	0.088	0.294
motor insurance	146	1.847	1.470	1.004	1.727
magazines	145.7	0.177	0.188	0.153	0.196
newspapers	145	1.218	1.963	1.941	1.562
other medical expenses	143.9	1.146	0.711	0.697	0.626
cigarettes	143.7	3.067	4.377	4.587	4.014
comics	140.9	0.033	0.033	0.027	0.007
rent	140.5	1.409	3.266	5.551	0.813
accod charges	136.9	0.173	0.107	0.050	0.767
baby food	134.7	0.057	0.030	0.063	0.021
cinema	134.4	0.118	0.042	0.059	0.013
hairdressing	132.4	0.543	0.519	0.669	0.370
meals out	132.3	3.291	1.911	2.238	1.458
shoe repairs	132.2	0.066	0.093	0.098	0.067
motor tax	132	0.677	0.618	0.348	0.797
tea	131.7	0.379	0.909	0.779	1.022
flake tobacco	131.2	0.144	0.348	0.125	0.608
union subs	131.1	0.307	0.026	0.015	0.037
beer	131	7.791	5.794	5.804	5.101
fresh fish	130.4	0.252	0.369	0.419	0.333
cigars	130.3	0.066	0.042	0.022	0.076
laundry & dry-cleaning	129.9	0.152	0.188	0.253	0.089
custard	129.1	0.042	0.066	0.053	0.087
pack hols	127.6	2.891	0.353	1.341	0.954
other exp	127.2	0.925	0.261	0.786	0.848
soups	126.9	0.147	0.246	0.247	0.250
spirits	125.6	3.252	3.007	2.514	3.845
house insurance	125.1	0.617	0.723	0.853	0.522
other milk products	124.7	0.282	0.223	0.261	0.240
preserves	124.1	0.171	0.348	0.296	0.383
other travel	123.6	0.447	0.432	0.195	0.741
repairs & maintenance	122.6	0.626	0.435	0.242	0.385
toilet accessories	121.8	0.415	0.379	0.407	0.288
bottled gas	121	0.452	1.400	1.183	1.560
books	120.8	0.422	0.214	1.150	0.087
floor coverings	120.5	0.300	0.187	0.658	0.349
sausages & meat extracts	120.2	0.213	0.260	0.284	0.254
bread	119.8	1.645	3.041	2.690	3.305
margarine	119.5	0.166	0.247	0.249	0.232
medicines & drugs	119.4	0.628	0.540	0.494	0.410
club/disco	118.9	0.535	0.138	0.118	0.128
bus fares	118	0.798	0.424	0.673	0.110
cheese	117.9	0.398	0.517	0.506	0.528

sugar & sweeteners	117.7	0.340	0.695	0.578	0.831
fuel oil	117.3	0.441	0.458	0.490	0.409
motorcycles	117.2	0.036	0.002	0.000	0.003
other services	117	1.176	0.878	0.969	0.831
motor oil	116.6	0.070	0.038	0.011	0.056
personal non-durables	116.5	0.150	0.221	0.247	0.160
fresh fruit	116.3	0.843	1.001	1.084	0.936
frozen vegetables	116	0.199	0.116	0.143	0.089
other fats & oils	116	0.087	0.095	0.118	0.059
dried fruit & nut	115.8	0.090	0.083	0.080	0.087
postage	115.7	0.168	0.290	0.256	0.263
other domestic non-durables	115.6	0.551	0.578	0.590	0.474
frozen fish	115.2	0.124	0.096	0.123	0.072
bacon	114.2	1.159	2.168	1.603	2.706
smoked fish	114.1	0.043	0.045	0.054	0.029
cleaning materials	113.8	0.154	0.295	0.301	0.247
dried vegetables	113.4	0.020	0.037	0.047	0.032
tinned fruit	113.3	0.074	0.112	0.102	0.095
breakfast cereals	113.2	0.391	0.423	0.452	0.403
flour	112.7	0.185	0.329	0.184	0.498
tinned vegetables	112.5	0.229	0.319	0.373	0.294
paper goods	112.5	0.327	0.358	0.324	0.318
cakes	112.4	0.529	0.859	0.751	0.903
dessert & ice cream	112.3	0.245	0.178	0.209	0.152
spare parts	112.3	0.382	0.292	0.029	0.614
biscuits	112.2	0.583	0.731	0.671	0.845
licenses	112.1	0.432	0.612	0.562	0.549
miscellaneous	112	0.615	0.492	0.568	0.454
repairs & decorations	111.6	2.010	2.611	1.904	3.479
cosmetics	111.6	0.316	0.208	0.247	0.110
motor cars	111.6	3.916	2.877	1.389	3.862
household brushes & other durables	111	0.294	0.335	0.299	0.382
potatoes	110.9	0.718	1.135	1.007	1.330
soft drinks	110.9	1.021	0.762	0.808	0.777
ironmongery & hardware	110.7	0.104	0.105	0.125	0.091
milk	110.5	2.312	3.386	3.045	3.818
rail fares	110.4	0.196	0.197	0.243	0.060
sausage	110.3	0.376	0.613	0.607	0.614
cooked meat	110.1	0.570	0.759	0.661	0.865
sweets & chocolate	110.1	0.878	0.605	0.681	0.590
stationery supplies	110	0.067	0.074	0.055	0.087
cd audio & video cassette	109.8	0.150	0.083	0.101	0.000
other cereals	109.6	0.118	0.155	0.165	0.131
mortgage interest	109.5	4.633	1.212	1.481	0.459
furniture	109.4	0.601	0.337	0.645	0.045
wine & cider	109.3	0.685	0.263	0.397	0.179
coal	109.2	2.748	6.993	6.968	6.640
motor fuel	109	4.252	2.948	1.646	3.855
butter	108.9	0.731	1.354	1.100	1.554
hair appliances	107.9	0.176	0.159	0.169	0.134
footwear	107	1.579	1.339	0.613	1.685
photo goods & development	106.9	0.131	0.075	0.059	0.091
crocery, glassware and kitchen utensils	106.4	0.234	0.215	0.197	0.243

other meat	105.9	0.370	0.411	0.511	0.283
soft furnishings	105.6	0.489	0.197	0.214	0.219
oatmeal	105	0.044	0.131	0.079	0.178
electricity	104.9	2.345	3.009	3.541	2.591
coffee	104.7	0.164	0.249	0.306	0.183
detergents	104.3	0.484	0.740	0.708	0.669
poultry	102.6	0.941	1.427	1.333	1.436
other vehicles	102.5	0.176	0.000	0.000	0.000
education & training	102.4	1.508	0.886	0.872	0.724
telephones	102.3	1.440	2.040	1.745	1.951
clothing	102.1	5.172	3.095	3.049	3.685
pork	101.8	0.528	0.627	0.664	0.602
piped gas	100.6	0.296	0.592	1.129	0.000
eggs	99.7	0.422	0.807	0.756	0.856
tv rental	99.4	0.744	1.343	1.780	0.570
lamb	98.9	0.608	1.060	0.903	1.222
cocoa	98.9	0.020	0.048	0.058	0.041
other appliances	98.1	0.414	0.156	0.751	0.012
sports & recreation goods	98.1	0.156	0.057	0.090	0.004
personal goods	97.2	0.400	0.311	0.340	0.274
electric/gas appliances	96.9	0.808	0.685	0.769	0.621
other fresh vegetables	94.9	0.631	0.937	0.979	0.860
beef	94.4	1.735	2.202	2.086	2.203
toys	79.9	0.304	0.161	0.125	0.106
tinned fish	67.3	0.073	0.114	0.136	0.080
acoustic appliances	65.7	0.501	0.269	0.236	0.274
tomatoes	39.6	0.184	0.263	0.236	0.275

**Appendix 2: Price Changes and Weights for Individual 'Goods', 1996 to 2001**

<b>Ranking by Change in Price from 1996 (part 1)</b>	2001 price index (1996 = 100)	average weight	weight for state poor	weight for urban poor	weight for rural poor
potatoes	165.5	0.632	1.301	1.067	1.491
lamb	159.4	0.463	0.911	0.707	1.128
motor insurance	156.9	2.019	1.670	1.116	2.081
other services	153.5	1.249	0.681	0.935	0.476
education & training	152.1	2.170	0.538	0.856	0.290
hairdressing	151.3	0.507	0.582	0.642	0.487
rent	149.7	1.922	4.362	7.848	0.776
hospital charges	148.7	0.157	0.099	0.068	0.124
breakfast cereals	148.3	0.429	0.466	0.460	0.487
medical fees	147.7	0.820	0.242	0.259	0.217
other medical expenses	146.8	1.422	0.604	0.778	0.466
comics	145.7	0.019	0.011	0.011	0.000
tinned fish	143.7	0.059	0.076	0.090	0.062
baby food	142.8	0.038	0.022	0.022	0.000
other vehicle costs	142.5	0.191	0.000	0.011	0.031
other travel	142.5	0.636	0.571	0.755	0.538
other fresh vegetables	142.3	0.579	0.987	0.966	0.963
magazines	140.2	0.225	0.231	0.180	0.228
tea	138.6	0.278	0.791	0.674	0.911
cigarettes	137.2	4.590	7.538	8.922	5.803
sweets & chocolate	136.8	0.820	0.618	0.550	0.663
tinned vegetables	136.6	0.181	0.314	0.314	0.311
other entertainment	136.4	0.802	0.187	0.214	0.248
margarine	135.6	0.078	0.130	0.112	0.155
shoe repairs	135.3	0.031	0.055	0.068	0.021
house insurance	134.5	0.707	0.966	1.055	0.839
flake tobacco	133.8	0.130	0.228	0.143	0.343
dried vegetables	132.5	0.013	0.022	0.034	0.010
biscuits	132.4	0.501	0.737	0.674	0.714
repairs & maintenance	132.1	0.570	0.516	0.417	0.673
custard	130.5	0.031	0.065	0.056	0.072
cocoa	129.8	0.022	0.076	0.045	0.041
fresh fish	129.7	0.188	0.314	0.303	0.290
meals out	129.3	4.002	2.136	2.661	1.667
frozen fish	129.1	0.153	0.184	0.168	0.228
other fats & oils	127.8	0.081	0.098	0.101	0.093
tomatoes	127.3	0.125	0.206	0.213	0.176
laundry & dry- cleaning	127.3	0.125	0.209	0.327	0.104
cinema	127.2	0.163	0.055	0.101	0.021
fresh fruit	126.9	0.701	0.976	0.932	1.035
tv rental	126.8	0.623	0.989	1.645	0.445
soups	126.5	0.138	0.314	0.269	0.342
personal non- durables	126.4	0.150	0.176	0.203	0.155
coal	126	1.544	5.743	4.570	6.822

accod charges	125.8	0.297	0.022	0.090	0.052
furniture	125.6	0.470	0.291	0.326	0.155
cleaning materials	125.5	0.160	0.253	0.282	0.238
books	125.5	0.466	0.143	0.192	0.072
toilet accessories	124.4	0.476	0.341	0.372	0.238
motor oil	124.3	0.044	0.044	0.011	0.083
sausage	124.2	0.263	0.488	0.460	0.507
cakes	123.9	0.472	0.781	0.696	0.818
detergents	123.9	0.469	0.659	0.710	0.621
cosmetics	123.8	0.457	0.198	0.282	0.135
cooked meat	123.7	0.507	0.748	0.606	0.818
cheese	123.6	0.347	0.423	0.460	0.393
soft drinks	123.4	1.048	0.824	0.865	0.818
bottled gas	123.3	0.269	0.997	0.764	1.211
licenses	123.1	0.319	0.439	0.406	0.476
beer	122.9	8.612	7.593	9.249	5.343
club and soc fees	121.9	0.476	0.154	0.124	0.217
dried fruit & nut	121.4	0.072	0.065	0.079	0.072
pack hols	121	2.652	1.010	1.156	0.952
other milk products	120.9	0.341	0.282	0.292	0.300
bacon	120.5	0.757	1.745	1.314	2.060
miscellaneous	120.4	0.920	0.683	0.808	0.611
spirits	120.3	2.713	3.448	2.526	4.669
cigars	120.2	0.099	0.032	0.033	0.059
eggs	119.9	0.235	0.510	0.505	0.487
other domestic non-durables	118.6	0.557	0.406	0.575	0.621
preserves	118.5	0.128	0.314	0.269	0.383
hair appliances	118.4	0.210	0.165	0.192	0.155
wine & cider	118.3	1.295	0.557	0.744	0.334
saucers & meat extracts	117.8	0.244	0.238	0.258	0.228
club/disco	117.7	0.423	0.132	0.237	0.041
rail fares	117.5	0.174	0.044	0.101	0.000
medicines & drugs	117.2	0.532	0.417	0.518	0.300
newspapers	117	1.033	1.758	1.724	1.667
floor coverings	115.5	0.266	0.410	0.269	0.621
dessert & ice cream	114.9	0.282	0.195	0.191	0.186
coffee	114.5	0.138	0.195	0.191	0.228
stationery supplies	114.5	0.081	0.033	0.034	0.010
union subs	114	0.251	0.011	0.011	0.021
repairs & decorations	113.4	1.566	1.497	0.988	2.174
paper goods	113.1	0.372	0.406	0.372	0.393
electrical repairs & parts	113	0.119	0.140	0.146	0.259
other vehicles	112.9	0.169	0.000	0.000	0.000
other cereals	112.2	0.163	0.173	0.180	0.197
bus fares	112	0.759	0.417	0.676	0.155
motor tax	111.9	0.830	0.747	0.462	0.983
other meat	111.7	0.297	0.358	0.404	0.290
tinned fruit	111.6	0.047	0.076	0.079	0.072
frozen vegetables	111.3	0.228	0.184	0.247	0.166
other exp	111.2	1.096	1.216	1.033	1.108
poultry	110.6	0.904	1.333	1.201	1.387
household brushes	110.1	0.288	0.248	0.202	0.290

fuel oil	109.5	0.670	0.824	0.584	0.994
bread	109.1	1.167	2.352	2.021	2.619
spare parts	109	0.466	0.187	0.011	0.300
pork	108.9	0.357	0.553	0.483	0.590
beef	108.8	1.183	1.745	1.505	1.874
motorcycles	108.6	0.016	0.044	0.068	0.000
flour	107.9	0.084	0.152	0.101	0.217
butter	107.7	0.463	1.019	0.808	1.232
photo goods & development	107.6	0.172	0.110	0.147	0.072
motor fuel	107.6	3.660	2.603	1.589	3.292
ironmongery & hardware	107.1	0.103	0.097	0.101	0.104
electricity	106.8	1.929	2.688	2.874	2.640
cd audio & video cassette	106.5	0.307	0.121	0.090	0.155
sports & recreation goods	105.9	0.156	0.033	0.045	0.031
oatmeal	104.4	0.022	0.076	0.056	0.093
milk	104.3	1.749	2.960	2.538	3.261
motor cars	103.7	4.471	2.087	0.766	4.306
smoked fish	103.6	0.028	0.054	0.045	0.052
personal goods	103	0.448	0.143	0.056	0.197
sugar & sweeteners	102	0.197	0.488	0.393	0.569
crockery, glassware	102	0.188	0.119	0.090	0.145
piped gas	100	0.432	0.379	0.752	0.000
other appliances	100	0.567	0.259	0.202	0.414
postage	99.3	0.135	0.220	0.203	0.248
mortgage interest	96.2	5.039	1.020	0.966	1.139
electric/gas appliances	95.5	0.701	0.453	0.438	0.352
soft furnishings	91.7	0.404	0.345	0.348	0.383
toys	90.2	0.341	0.143	0.135	0.062
footwear	86.4	1.251	1.116	0.865	1.511
acoustic appliances	77.2	0.426	0.270	0.371	0.124
telephones	76.1	1.948	2.790	2.536	2.919
clothing	71.7	4.987	3.316	2.987	3.934
local authority charges	38.8	0.254	0.434	0.371	0.466

**Appendix 3: Mean monthly contribution of each good to the gap between the particular group price index and the average (baseline) index.**

*Minus numbers mean the monthly changes in the price of the good were relatively favourable for the poor on average.*

<b>1989-1996: State Poor</b>	<b>Urban Poor</b>	<b>Rural Poor</b>	
mortgage interest	-0.2322	motor insurance	-0.2221
pack hols	-0.1800	mortgage interest	-0.2140
beer	-0.1110	beer	-0.1104
coal	-0.1019	pack hols	-0.1099
motor insurance	-0.0995	bacon	-0.1013
other entertainment	-0.0890	milk	-0.0990
meals out	-0.0810	meals out	-0.0972
bacon	-0.0791	coal	-0.0803
milk	-0.0776	other entertainment	-0.0664
club and soc fees	-0.0672	lamb	-0.0630
lamb	-0.0607	potatoes	-0.0618
tv rental	-0.0563	club and soc fees	-0.0539
potatoes	-0.0557	butter	-0.0529
butter	-0.0547	rent	-0.0397
poultry	-0.0452	education & training	-0.0393
electricity	-0.0446	poultry	-0.0388
medical fees	-0.0399	repairs & decorations	-0.0386
education & training	-0.0380	eggs	-0.0365
eggs	-0.0323	other medical expenses	-0.0350
telephones	-0.0322	motor insurance	-0.0348
other fresh vegetables	-0.0307	beef	-0.0324
other medical expenses	-0.0301	medical fees	-0.0311
beef	-0.0299	telephones	-0.0280
piped gas	-0.0224	other fresh vegetables	-0.0275
repairs & decorations	-0.0181	bus fares	-0.0268
other vehicle costs	-0.0177	electricity	-0.0230
detergents	-0.0172	other appliances	-0.0225
sausage	-0.0154	other travel	-0.0198
		beef	
		sausage	
		union subs	
		coffee	

union subs	-0.0150	tinned fish	-0.0194	hospital charges	-0.0130
licenses	-0.0138	spirits	-0.0176	detergents	-0.0124
tinned fish	-0.0129	telephones	-0.0164	tomatoes	-0.0114
bus fares	-0.0123	repairs & maintenance	-0.0159	hairdressing	-0.0105
coffee	-0.0118	union subs	-0.0155	cakes	-0.0101
pork	-0.0109	detergents	-0.0150	repairs & maintenance	-0.0100
electrical repairs & parts	-0.0105	sausage	-0.0149	books	-0.0095
cooked meat	-0.0104	pork	-0.0149	biscuits	-0.0095
tomatoes	-0.0099	electrical repairs & parts	-0.0137	oatmeal	-0.0094
cakes	-0.0089	accod charges	-0.0117	licenses	-0.0090
repairs & maintenance	-0.0079	tinned vegetables	-0.0100	pork	-0.0081
motor tax	-0.0070	licenses	-0.0099	cinema	-0.0060
tinned vegetables	-0.0063	other meat	-0.0089	spare parts	-0.0049
accod charges	-0.0062	tomatoes	-0.0066	footwear	-0.0046
oatmeal	-0.0061	cakes	-0.0060	tinned vegetables	-0.0045
books	-0.0059	cooked meat	-0.0050	house insurance	-0.0039
spirits	-0.0058	bus fares	-0.0041	laundry & dry-cleaning	-0.0039
biscuit	-0.0053	cocoa	-0.0039	baby food	-0.0032
cinema	-0.0043	fuel oil	-0.0036	coffee	-0.0027
hospital charges	-0.0035	cleaning materials	-0.0034	household brushes & other durables	-0.0026
cleaning materials	-0.0033	cinema	-0.0034	frozen fish	-0.0025
cocoa	-0.0029	biscuit	-0.0032	tinned fish	-0.0023
floor coverings	-0.0028	magazines	-0.0028	comics	-0.0022
other meat	-0.0026	oatmeal	-0.0024	cleaning materials	-0.0022
baby food	-0.0024	cigars	-0.0022	cocoa	-0.0022
other exp	-0.0024	other domestic non-durables	-0.0021	cheese	-0.0016
tinned fruit	-0.0020	other fats & oils	-0.0015	frozen vegetables	-0.0012
paper goods	-0.0016	tinned fruit	-0.0015	tinned fruit	-0.0011
cheese	-0.0015	furniture	-0.0014	stationery supplies	-0.0009
hairdressing	-0.0015	cheese	-0.0013	other milk products	-0.0006
other domestic non-durables	-0.0014	dried vegetables	-0.0012	crockery, glassware and kitchen utensils	-0.0005

other travel	-0.0014	other cereals	-0.0011	dried vegetables	-0.0005
frozen fish	-0.0014	rail fares	-0.0010	toilet accessories	-0.0004
fuel oil	-0.0012	flake tobacco	-0.0009	other cereals	-0.0003
household brushes & other durables	-0.0012	personal non-durables	-0.0006	other exp	-0.0003
cigars	-0.0012	frozen vegetables	-0.0006	smoked fish	-0.0001
frozen vegetables	-0.0009	ironmongery & hardware	-0.0006	dried fruit & nut	-0.0001
other cereals	-0.0009	comics	-0.0005	personal non-durables	-0.0001
other milk products	-0.0008	other exp	-0.0005	breakfast cereals	0.0000
dried vegetables	-0.0008	dried fruit & nut	-0.0003	motor oil	0.0000
personal non-durables	-0.0005	other milk products	-0.0003	medicines & drugs	0.0000
other fats & oils	-0.0004	household brushes & other durables	-0.0002	motorcycles	0.0000
stationery supplies	-0.0003	frozen fish	-0.0001	shoe repairs	0.0000
dried fruit & nut	-0.0002	hospital charges	-0.0001	sauces & meat extracts	0.0002
toilet accessories	-0.0001	toilet accessories	0.0000	ironmongery & hardware	0.0004
rail fares	0.0000	flour	0.0000	paper goods	0.0004
ironmongery & hardware	0.0000	breakfast cereals	0.0000	cigars	0.0005
breakfast cereals	0.0000	medicines & drugs	0.0000	margarine	0.0005
medicines & drugs	0.0000	motorcycles	0.0000	floor coverings	0.0012
smoked fish	0.0000	smoked fish	0.0001	other vehicle costs	0.0013
comics	0.0000	paper goods	0.0001	electrical repairs & parts	0.0013
motorcycles	0.0000	motor oil	0.0001	other fats & oils	0.0014
motor oil	0.0001	sauces & meat extracts	0.0004	fresh fruit	0.0015
sauces & meat extracts	0.0003	custard	0.0004	photo goods & development	0.0018
margarine	0.0006	hair appliances	0.0005	custard	0.0019
hair appliances	0.0010	baby food	0.0005	magazines	0.0022
custard	0.0010	stationery supplies	0.0005	soups	0.0023
crockery, glassware and kitchen utensils	0.0011	margarine	0.0007	fuel oil	0.0024
magazines	0.0013	dessert & ice cream	0.0016	hair appliances	0.0025
shoe repairs	0.0014	shoe repairs	0.0017	motor cars	0.0026
flour	0.0015	miscellaneous	0.0020	rail fares	0.0029
spare parts	0.0019	cosmetics	0.0021	flour	0.0033

soups	0.0022 crockery, glassware and kitchen utensils	0.0022 postage	0.0039
laundry & dry-cleaning	0.0023 soups	0.0022 other services	0.0040
photo goods & development	0.0025 cd audio & video cassette	0.0023 dessert & ice cream	0.0042
fresh fruit	0.0026 other services	0.0024 other domestic non-durables	0.0043
dessert & ice cream	0.0030 photo goods & development	0.0032 other meat	0.0055
cd audio & video cassette	0.0031 repairs & decorations	0.0032 cosmetics	0.0064
cosmetics	0.0034 postage	0.0036 preserves	0.0066
other services	0.0034 preserves	0.0039 miscellaneous	0.0067
house insurance	0.0044 fresh fruit	0.0040 cd audio & video cassette	0.0069
postage	0.0051 electric/gas appliances	0.0040 other vehicles	0.0081
miscellaneous	0.0051 sugar & sweeteners	0.0052 bread	0.0090
preserves	0.0055 sports & recreation goods	0.0055 fresh fish	0.0100
bread	0.0076 bread	0.0057 club/disco	0.0105
sugar & sweeteners	0.0078 personal goods	0.0060 sugar & sweeteners	0.0108
other vehicles	0.0081 laundry & dry-cleaning	0.0064 soft drinks	0.0109
sports & recreation goods	0.0083 spare parts	0.0074 personal goods	0.0126
furniture	0.0083 hairdressing	0.0076 sports & recreation goods	0.0128
personal goods	0.0088 other vehicles	0.0081 spirits	0.0142
flake tobacco	0.0099 floor coverings	0.0088 motor tax	0.0144
club/disco	0.0102 soft drinks	0.0095 sweets & chocolate	0.0153
footwear	0.0103 house insurance	0.0097 tv rental	0.0163
soft drinks	0.0116 sweets & chocolate	0.0105 soft furnishings	0.0172
electric/gas appliances	0.0124 club/disco	0.0107 furniture	0.0175
sweets & chocolate	0.0145 wine & cider	0.0130 electric/gas appliances	0.0188
fresh fish	0.0145 soft furnishings	0.0174 piped gas	0.0223
soft furnishings	0.0186 books	0.0207 flake tobacco	0.0224
wine & cider	0.0191 fresh fish	0.0208 wine & cider	0.0229
other appliances	0.0206 bottled gas	0.0226 local authority charges	0.0253
toys	0.0237 tea	0.0279 other travel	0.0268
local authority charges	0.0282 local authority charges	0.0287 other appliances	0.0320
bottled gas	0.0294 toys	0.0296 toys	0.0329

tea	0.0370	footwear	0.0416	bottled gas	0.0343
motor cars	0.0501	acoustic appliances	0.0687	motor fuel	0.0438
acoustic appliances	0.0603	newspapers	0.1025	tea	0.0449
newspapers	0.1055	motor cars	0.1219	newspapers	0.0488
cigarettes	0.1256	clothing	0.1332	accod charges	0.0562
clothing	0.1303	cigarettes	0.1457	acoustic appliances	0.0590
motor fuel	0.1440	motor fuel	0.2877	cigarettes	0.0908
rent	0.1782	rent	0.3975	clothing	0.0933
<b>Mean Monthly Gap in Indices</b>	<b>-0.8141</b>	<b>Mean Monthly Gap in Indices</b>	<b>-0.4300</b>	<b>Mean Monthly Gap in Indices</b>	<b>-1.1262</b>

**Appendix 4: Mean monthly contribution of each good to the gap between the particular group price index and the average (baseline) index.**

<b>1996-2001: State Poor</b>	<b>Urban Poor</b>	<b>Rural Poor</b>	
education & training	-0.2059 education & training	-0.1658 education & training	-0.2373
telephones	-0.1518 telephones	-0.1059 telephones	-0.1751
local authority charges	-0.1195 motor insurance	-0.0855 local authority charges	-0.1406
other medical expenses	-0.0982 other medical expenses	-0.0774 other medical expenses	-0.1148
milk	-0.0788 local authority charges	-0.0773 rent	-0.1071
meals out	-0.0743 medical fees	-0.0540 other services	-0.0995
other services	-0.0731 meals out	-0.0534 milk	-0.0984
medical fees	-0.0556 milk	-0.0513 meals out	-0.0930
bread	-0.0481 electricity	-0.0436 beer	-0.0712
other entertainment	-0.0394 other services	-0.0404 bread	-0.0590
bacon	-0.0383 tv rental	-0.0402 medical fees	-0.0580
electricity	-0.0350 other entertainment	-0.0376 bacon	-0.0504
motor insurance	-0.0331 bread	-0.0347 footwear	-0.0397
poultry	-0.0242 sweets & chocolate	-0.0258 other entertainment	-0.0354
butter	-0.0242 bacon	-0.0215 butter	-0.0334
beef	-0.0232 piped gas	-0.0207 electricity	-0.0328
beer	-0.0222 newspapers	-0.0197 beef	-0.0285
newspapers	-0.0206 poultry	-0.0168 poultry	-0.0272
accod charges	-0.0198 butter	-0.0150 fuel oil	-0.0230
sweets & chocolate	-0.0193 accod charges	-0.0149 sugar & sweeteners	-0.0203
sugar & sweeteners	-0.0159 other vehicle costs	-0.0147 books	-0.0193
books	-0.0158 club and soc fees	-0.0138 pork	-0.0184
other vehicle costs	-0.0156 books	-0.0134 newspapers	-0.0180
pork	-0.0155 beef	-0.0133 accod charges	-0.0177
tv rental	-0.0144 hospital charges	-0.0124 repairs & decorations	-0.0171
club and soc fees	-0.0127 sugar & sweeteners	-0.0107 sweets & chocolate	-0.0150
fuel oil	-0.0109 pork	-0.0099 other vehicle costs	-0.0131
hospital charges	-0.0080 repairs & maintenance	-0.0076 other travel	-0.0120
other travel	-0.0080 wine & cider	-0.0055 toilet accessories	-0.0111

wine & cider	-0.0074	toilet accessories	-0.0049	club and soc fees	-0.0102
toilet accessories	-0.0063	postage	-0.0047	wine & cider	-0.0096
postage	-0.0059	soft drinks	-0.0044	postage	-0.0079
cosmetics	-0.0054	licenses	-0.0037	cosmetics	-0.0068
soft drinks	-0.0053	cosmetics	-0.0037	licenses	-0.0067
licenses	-0.0052	magazines	-0.0036	flour	-0.0060
cinema	-0.0045	other meat	-0.0030	cinema	-0.0059
oatmeal	-0.0038	spirits	-0.0028	soft drinks	-0.0055
club/disco	-0.0036	cinema	-0.0026	oatmeal	-0.0050
flour	-0.0031	oatmeal	-0.0024	baby food	-0.0049
repairs & maintenance	-0.0027	club/disco	-0.0023	club/disco	-0.0047
furniture	-0.0026	motorcycles	-0.0022	furniture	-0.0046
other exp	-0.0021	furniture	-0.0021	hospital charges	-0.0045
baby food	-0.0021	baby food	-0.0020	motor tax	-0.0040
other meat	-0.0017	cigars	-0.0014	comics	-0.0028
smoked fish	-0.0016	comics	-0.0011	hairdressing	-0.0026
miscellaneous	-0.0015	smoked fish	-0.0011	electrical repairs & parts	-0.0024
cigars	-0.0014	motor oil	-0.0010	miscellaneous	-0.0019
rail fares	-0.0014	cheese	-0.0010	rail fares	-0.0019
motorcycles	-0.0012	rail fares	-0.0008	smoked fish	-0.0015
comics	-0.0011	flour	-0.0008	hair appliances	-0.0012
hair appliances	-0.0010	miscellaneous	-0.0007	cigars	-0.0008
paper goods	-0.0008	tinned fruit	-0.0006	shoe repairs	-0.0007
other milk products	-0.0007	other milk products	-0.0006	other cereals	-0.0007
cheese	-0.0006	frozen vegetables	-0.0005	other milk products	-0.0005
tinned fruit	-0.0005	electrical repairs & parts	-0.0005	paper goods	-0.0005
electrical repairs & parts	-0.0004	hair appliances	-0.0004	tinned fruit	-0.0005
other cereals	-0.0002	other cereals	-0.0003	laundry & dry-cleaning	-0.0005
dried fruit & nut	-0.0002	other domestic non-durables	-0.0001	cheese	-0.0004
medicines & drugs	0.0000	medicines & drugs	0.0000	other domestic non-durables	-0.0003
sauces & meat extracts	0.0000	floor coverings	0.0000	other exp	-0.0002
motor oil	0.0000	paper goods	0.0000	dried vegetables	-0.0002

other vehicles	0.0002	saucers & meat extracts	0.0001	medicines & drugs	-0.0001
ironmongery & hardware	0.0002	ironmongery & hardware	0.0001	saucers & meat extracts	-0.0001
magazines	0.0004	other vehicles	0.0002	household brushes & other durables	-0.0001
stationery supplies	0.0005	dried fruit & nut	0.0002	ironmongery & hardware	0.0000
floor coverings	0.0005	stationery supplies	0.0005	dried fruit & nut	0.0000
other domestic non-durables	0.0006	preserves	0.0006	personal non-durables	0.0002
dried vegetables	0.0006	frozen fish	0.0007	other vehicles	0.0002
personal non-durables	0.0008	dessert & ice cream	0.0009	magazines	0.0002
dessert & ice cream	0.0008	flake tobacco	0.0011	other meat	0.0002
preserves	0.0009	other exp	0.0011	tinned fish	0.0004
other fats & oils	0.0010	photo goods & development	0.0011	motorcycles	0.0007
frozen vegetables	0.0012	other fats & oils	0.0012	other fats & oils	0.0007
household brushes & other durables	0.0013	dried vegetables	0.0015	house insurance	0.0007
house insurance	0.0014	personal non-durables	0.0017	stationery supplies	0.0008
frozen fish	0.0014	cocoa	0.0018	dessert & ice cream	0.0009
shoe repairs	0.0016	cooked meat	0.0019	preserves	0.0012
laundry & dry-cleaning	0.0018	house insurance	0.0019	motor oil	0.0012
repairs & decorations	0.0019	bus fares	0.0020	floor coverings	0.0013
motor tax	0.0022	custard	0.0021	cocoa	0.0015
tinned fish	0.0027	shoe repairs	0.0024	frozen vegetables	0.0017
photo goods & development	0.0027	household brushes & other durables	0.0028	soft furnishings	0.0023
custard	0.0029	margarine	0.0029	motor fuel	0.0026
coffee	0.0032	coffee	0.0029	crockery, glassware and kitchen utensils	0.0029
eggs	0.0032	eggs	0.0031	eggs	0.0029
piped gas	0.0034	union subs	0.0035	union subs	0.0034
union subs	0.0036	sausage	0.0041	frozen fish	0.0034
cocoa	0.0042	laundry & dry-cleaning	0.0042	custard	0.0035
margarine	0.0044	tinned fish	0.0049	photo goods & development	0.0043
cooked meat	0.0045	cakes	0.0054	cleaning materials	0.0043
crockery, glassware and kitchen utensils	0.0046	sports & recreation goods	0.0056	spare parts	0.0044

sausage	0.0047 fresh fish	0.0058 coffee	0.0049
cleaning materials	0.0051 fuel oil	0.0061 tomatoes	0.0050
sports & recreation goods	0.0063 soft furnishings	0.0062 fresh fish	0.0051
fresh fish	0.0063 crockery, glassware and kitchen utensils	0.0065 sausage	0.0051
soft furnishings	0.0064 breakfast cereals	0.0067 repairs & maintenance	0.0052
cd audio & video cassette	0.0065 soups	0.0067 cd audio & video cassette	0.0053
spare parts	0.0074 cleaning materials	0.0067 motor insurance	0.0058
cakes	0.0074 cd audio & video cassette	0.0076 cooked meat	0.0058
motor fuel	0.0075 pack hols	0.0078 sports & recreation goods	0.0064
flake tobacco	0.0079 tomatoes	0.0087 margarine	0.0066
breakfast cereals	0.0079 biscuits	0.0092 tv rental	0.0070
tomatoes	0.0079 motor tax	0.0096 cakes	0.0083
bus fares	0.0081 acoustic appliances	0.0102 motor cars	0.0084
pack hols	0.0086 spare parts	0.0120 pack hols	0.0089
soups	0.0090 tinned vegetables	0.0120 detergents	0.0091
hairdressing	0.0096 beer	0.0139 other appliances	0.0092
spirits	0.0110 detergents	0.0144 soups	0.0104
detergents	0.0113 motor fuel	0.0148 biscuit	0.0114
tinned vegetables	0.0120 other travel	0.0148 tinned vegetables	0.0117
biscuit	0.0126 repairs & decorations	0.0162 breakfast cereals	0.0122
other appliances	0.0186 hairdressing	0.0172 bus fares	0.0143
electric/gas appliances	0.0190 bottled gas	0.0179 personal goods	0.0169
personal goods	0.0205 lamb	0.0190 flake tobacco	0.0171
footwear	0.0206 electric/gas appliances	0.0202 electric/gas appliances	0.0267
fresh fruit	0.0245 fresh fruit	0.0206 piped gas	0.0279
toys	0.0256 other appliances	0.0220 spirits	0.0294
bottled gas	0.0264 personal goods	0.0264 fresh fruit	0.0298
acoustic appliances	0.0286 toys	0.0265 bottled gas	0.0342
lamb	0.0347 tea	0.0387 toys	0.0360
tea	0.0503 other fresh vegetables	0.0487 other fresh vegetables	0.0483
other fresh vegetables	0.0513 footwear	0.0589 lamb	0.0517
coal	0.0918 coal	0.0662 acoustic appliances	0.0554

motor cars	0.1226	potatoes	0.1751	tea	0.0620
rent	0.2279	motor cars	0.1905	cigarettes	0.1100
cigarettes	0.2673	mortgage interest	0.3382	coal	0.1154
potatoes	0.2694	cigarettes	0.3928	clothing	0.2550
mortgage interest	0.3336	clothing	0.4844	mortgage interest	0.3238
clothing	0.4046	rent	0.5536	potatoes	0.3459
<b>Mean Monthly Gap in Indices</b>	<b>0.8640</b>	<b>Mean Monthly Gap in Indices</b>	<b>1.6174</b>	<b>Mean Monthly Gap in Indices</b>	<b>0.0052</b>

